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June 16, 1977

AN EVALUATION OF SAN LUIS AND HEAD LAKES
REFERRED TO AS SAN LUIS STATE WILDLIFE AREA

The San Luis and Head Lakes, located approximately 8 miles east of Mosca, Colorado, which is located on the east side of the San Luis Valley in southern Colorado have, historically, been very valuable to the waterfowl resources of the Valley as well as the Central Flyway. Early-day studies of 1929 by Charles C. Sperry and A. C. Martin, who were then with the Biological Survey, made an extensive study of the area in question and, generally, the vegetation and water that they found there at that time is still found today. A copy of their report of 1929 is enclosed.

My study of this area on April 15, 16, and 17, 1977, revealed that the water conditions in Head and San Luis Lakes were very low and that it could be expected that San Luis Lakes would again dry up this year which had previously occurred during the fall of 1966, which was the last major drought period for the San Luis Valley. During my evaluation of this area, I came in contact with Mr. John Dumeyer, professional engineer from Pueblo, Colorado, who represents Mr. John Firestone of the HBH Land Company, P. O. Box 2526, Colorado Springs, Colorado 80901. Mr. Dumeyer informed me that Mr. Firestone was interested in draining Head Lake for the use of these waters to develop lands lying east of Section 14 T 40 R 11 of the New Mexico P.M.. We had heard that Mr. Firestone was planning to use Head Lake in this manner previously but nothing was confirmed until we had the above discussion with Mr. Dumeyer. If the use of this water is principally irrigation of ag. lands to the east it would virtually eliminate the only water that is available in Head Lake but also the water that goes into San Luis Lakes. It is my feeling that all waterfowl values would be lost in this area.

As anyone knows, the San Luis Valley has been losing wetlands and its value as a major waterfowl area is being decreased each year. It now behooves us to protect as much of the remaining wetlands as possible. In line with this we would recommend that action be taken immediately to pick up all of Section 14; the East 1/2 of Sec. 15; Section 23; East 1/2 of the NE 1/4 of Section 22; SW 1/4 of the SW 1/4 of Section 24; NW 1/4, SW 1/4, SE 1/4, of the NW 1/4 of Sec. 25; SW 1/4, NW 1/4, SW 1/4 of the SE 1/4 of Sec. 25, East 1/2 in the E 1/2 of the NW 1/4 of Section 26; E 1/2 of Sec. 35 & Sec. 36, totaling 3,400 acres all in Twp. 40, Rge. 11 E., N.M., P.M.

All of the lands mentioned above are now held by the State Land Board of Colorado. Once these lands are secured, we would recommend that application for the deep well at La Jara Fish Hatchery be moved and relocated in the SE 1/4 of the SE 1/4 of Section 14, which is near the confluence of those streams entering Head Lake that come into the property from the northeast part of the Valley and, in effect, drain away from the Sangre de Christo Mountain. This

=/4 Sec

will produce 2,255 acre feet. Immediately after the drilling of the well, we would recommend the following type of development to be performed on the above lands.

Recommendations for Redevelopment of San Luis Lakes Wildlife Area

Transfer Well #4, depth 1,735', appropriated April 25, 1963 decreed 12/16/75 for 2.07 c.f.s. for 940 g.p.m. and Well #5, depth 1,300', appropriated Feb. 21, 1955, decreed 12/16/75 for 1.02 c.f.s. from their locations at La Jara Hatchery to the SE 1/4 of the SE 1/4 of Section 14 as noted on map attached.

These wells, producing 3.09 c.f.s. for 365 days each year, will produce approximately 2,255 acre feet of water each year. With this and other natural inflow, the level of this lake should be stabilized so that a viable fishery will be obtained. Waters not needed for the lake could be used in the development of marshlands in Sec. 23, 25, 26 and 35.

Cost of well at 1,600' @ $30.00 per ft. will be $48,000.00. Pipeline from well to San Luis Lake with diversion box at well is estimated at -- 9,024' + 12' aluminum pipe and diversion box = $27,072.00

Three shallow wells should be installed along with W 1/2 of Section 15 at intervals of 1/2 mile. They will be drilled to a depth of 120' to 140' but must stay above the blue clay layer. Recently, these wells equipped with a 15 h.p. motor would produce 450 g.p.m. or 1 c.f.s. at a cost of $10,000 each.

These three wells, producing 3 c.f.s. daily, or 2,190 acre feet yearly, would be used to create waterfowl, shorebird, and upland game habitat in the E 1/2 of 15, part of 22, all of 23, portions of 24, 25, 26 and 35. All return flow would go into San Luis Lakes.

The applications for the above wells should state that information derived from them will be made available to the Bureau of Reclamation at Amarillo, Texas in their study of the closed basin project and will become a part of the Basin Project when and if it is constructed.

Total cost of 3 wells with diversion boxes = $31,500.00.

Ditches to carry water from wells to Marsh Area -- 3 miles -- $4,500.00.

Dikes needed to create habitat for nesting and wintering waterfowl, shorebirds and upland game should be of the contour type. Four will be needed and constructed with a 14' crown and 5 to 1 side slopes approx. 3' high. The dikes should have outlet pipes installed every 600' so that irrigation of the marsh below can be obtained. Nesting islands for geese should be constructed in the barrow area removed for the dike at intervals of every 600'. No barrow pit should be made on the downstream side of the dike and the barrow pit should be cut no deeper than two feet on the upstream side of the dike. Construction of the dikes should be made with cats an carryalls so in not more than 3 tenths lift so that proper compaction will be had.

The pump wells would only be used to create a small pond in front of the dikes and to flood irrigate the marshland in the early part of the spring, preferably

by April 1, maintain water in the ponds through July 30th, and then refill the pools before September 1; once icing starts the water would not be used until the following spring.

Dike #1 -- 6,580' with 11 regulating gates out of 15" x 18" c.m.p. pipe with a 2½' canal check for flash boards on the upstream side -- dirt work -- .75¢ yd.	=	$ 4,935.00
11 - Canal Checks -- $300.00 ea.	=	3,300.00
Total Cost		$ 8,235.00
Dike #2 -- 4,700' with 8 regulating gates as noted above. Dirt work .75¢ yd.	=	$ 3,525.00
8 - Canal Checks -- $300.00 ea.	=	2,400.00
Total Cost		$ 5,925.00
Dike #3 -- 5,452' with 9 regulating gates as noted above - dirt work .75¢ yd.	=	$ 4,089.00
9 - Canal Checks -- $300.00 ea.	=	2,700.00
Total Cost		$ 6,789.00
Dike #4 -- 8,460' with 14 regulating gates as noted above -- dirt work .75¢ yd.	=	$ 6,345.00
14 Canal Checks -- $300.00 ea.	=	4,200.00
		$10,545.00
Grand Total for Dikes 1 - 4	=	$31,494.00

Construct wildlife planting, single stand all along west side of property -- 5.25 miles - Russian Olive and Chinese Elm --

5.25 miles @ 400.00 mile = $ 2,100.00

Construct wildlife planting on south side of Sections 35 & 36 -- multiple single stand plantings of Russian Olive & Chinese Elm that will cut wind erosion and provide habitat for pheasants, dove, and several types of song birds.

5 lines - 1.50 mile each - Total 7.50 miles @ $400.00 per mile = $ 2,250.00

Thirteen and one quarter miles of access roads will be needed that will tie into contour dikes for control of the area and provide access to area by general public.

13.25 miles road @ $1,500.00 per mile = $19,875.00

Thirteen and one quarter miles of exterior fence needed.

13.25 miles fence at $1,500.00 per mile = $19,875.00

Two cattleguards as noted on map- 2 @ $1,500.00 = $ 3,000.00

Boat ramp and entrance way to lake area should be constructed so that lake will present a pleasing appearance. Old buildings will have to be removed. Total cost is expected to be approximately. $ 5,000.00

Maintenance building with one bay set aside for an office will be required, as personnel will be required at least during the months of March through January. A comparable building constructed recently cost -- $20,000.00.

With public use, two toilet facilities with water, and litter barrels will be needed. Estimate Cost -- $ 5,000.00

The grand total of capital expenditures to get into operation on this area is estimated to cost by Priority:

(1)	Wells -- 4	$ 79,500
(4)	Ditches	4,500
(5)	Dikes	31,494
(10)	Wildlife Plantings	4,350
(6)	Access Roads	19,875
(2)	Ext. Fences	19,875
(3)	Cattleguards	3,000
(7)	Boat Ramp & Grounds	5,000
(9)	Maintenance Building	20,000
(8)	Restroom Facilities	5,000
		$ 192,594

Area other than the S 1/2 of 36 and SE 1/4 of 35 should be closed to all use from March 1 to July 15.

Entire area closed except for hunting during October, November, December and January. Hunting to be on an assigned basis.

Area is one that will receive heavy use during summer period when out-of-state visitors are using Great Sand Dunes National Monument which is located just east of San Luis Lake.

An established need for this area has been proven many times in the past when suitable water was available for fishing, boating and hunting. An increase in the use of this side of the San Luis Valley has been brought about by visitation to the Dunes and the establishment at the Baca Grande Development located about 20 miles to the north, near Crestone, Colorado.

With development, these wildlife human values will come to fruitation.

Pheasant Days Use	--	18,250 - Peak -- 50
Dove Days Use	--	30,000 - Peak - 400
Duck Days Use	--	450,000 - Peak - 4,500
Goose Days Use	--	20,000 - Peak - 400
Duck Production	--	4,000 Av.
Goose Production	--	200 Av.

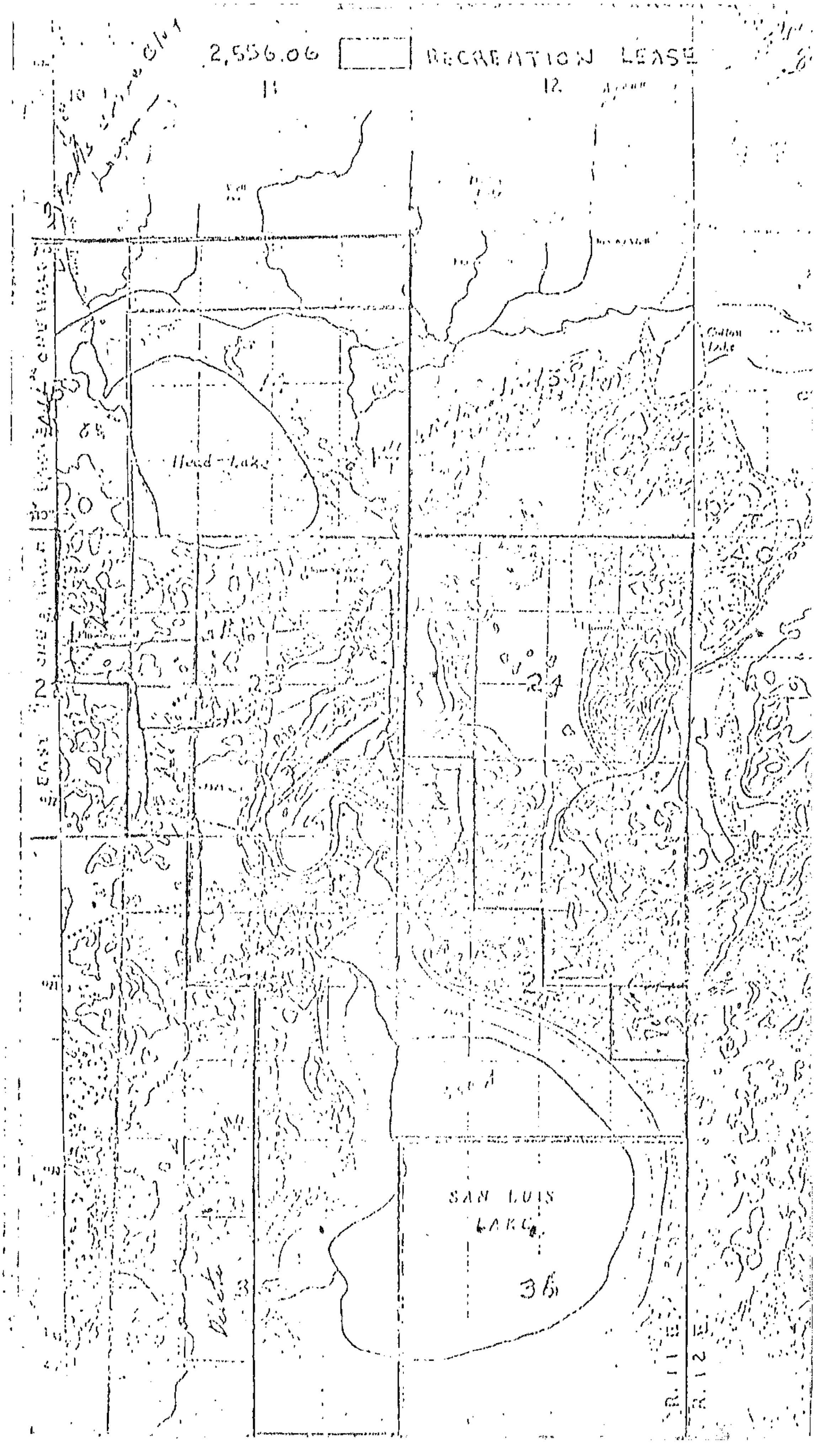
Use of all shorebirds and songbirds common on area.

Human Values --

General Visitation	--	7,300 days use
Fishing	--	9,000 days use
Hunting	--	1,200 days use

Submitted by:

Charles K. Brown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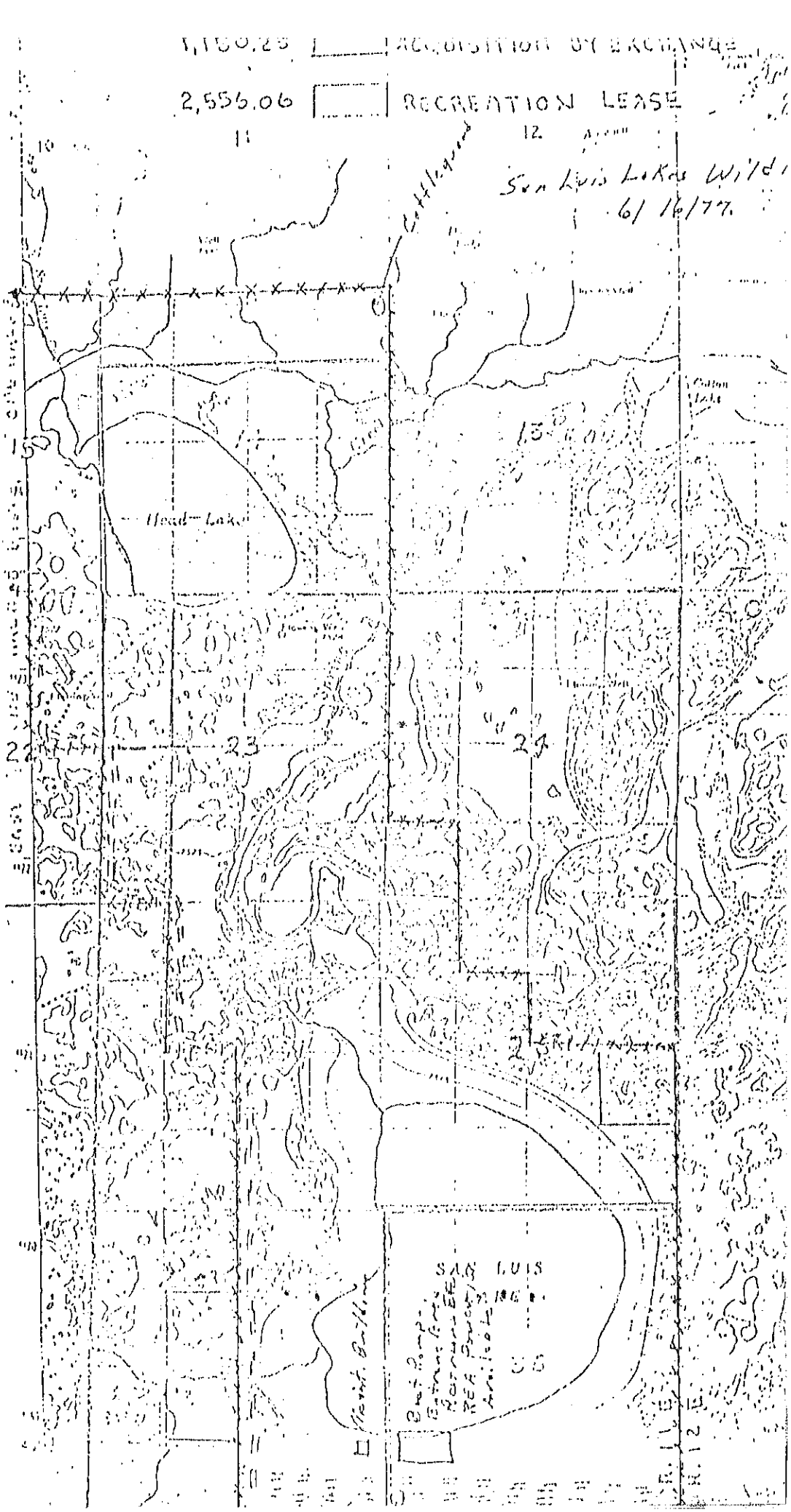
RECREATION LEASE
11
12
Head Lake
24
SAN LUIS
LAKE
36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San Luis Lake Wild
6/16/77
Head Lake
SAN LUIS